

# Rethinking the distribution of English finite clausal complements: evidence from complementiser-*how* clauses<sup>1</sup>

## Abstract

This paper advocates a new conception of the properties which determine the distribution of finite clausal complements (FCCs) in English. I argue against the orthodox view that FCCs are selected by matrix predicates on the basis of their interpretive type (Grimshaw 1979, Rizzi 1997, Ginzburg & Sag 2000), and propose that distribution rather depends on the specification of the FCC in terms of the syntactically encoded properties [+/-*wh*, +/-factive]. This proposal is motivated by new distributional patterns which emerge when the typology of English FCCs is expanded to take into account complementiser-*how* clauses (CHCs) (Legate 2010; Nye 2012). CHCs have their own unique interpretation, yet, strikingly, have exactly the same distribution as embedded exclamatives. This is unexpected under the traditional view of FCC selection, but is explained if CHCs and exclamatives are selected on the basis of a common [+*wh*, +factive] syntactic specification.

## Key words

clausal complementation, interpretive type, English, factivity, *wh*.

## 1. The traditional view of finite clausal complement distribution

Grimshaw (1979: 285) proposes that finite clausal complements (FCCs) belong to one of three different interpretive types, which are motivated on the basis of “systematic differences in semantics”: propositions, questions and exclamations.<sup>2</sup> She further claims that the distribution of FCCs is dependent on their interpretive type - matrix predicates specify which interpretive types they select for.<sup>3</sup> Thus whilst *forget* in (1) is compatible with complements belonging to any of the three interpretive types, *think* can only be combined with FCCs of type ‘proposition’ (2), *ask* only with FCCs of type ‘question’ (3).<sup>4</sup> Table 1 summarises these distributional regularities, and gives additional examples of predicates which place the same selectional requirements on their clausal complements.

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|--|---------------|
| (1) a. John forgot [that Mary lived in Spain].               | [proposition] |
| b. John forgot [where Mary lived].                           | [question]    |
| c. John forgot [what a lot of time Mary had spent in Spain]. | [exclamation] |
|  |               |
| (2) a. John thought [that Mary lived in Spain].              | [proposition] |
| b. * John thought [where Mary lived].                        | [*question]   |

- c. \* John thought [what a lot of time Mary had spent in Spain].      [\*exclamation]
- (3) a. \* John asked [that Mary lived in Spain].      [\*proposition]  
 b. John asked [where Mary lived].      [question]  
 c. \* John asked [what a lot of time Mary had spent in Spain].      [\*exclamation]

Table 1 - Summary of the types of FCC selected by different predicates (Grimshaw 1979)

		proposition	question	exclamation
(1)	<i>forget (learn, see)</i>	√	√	√
(2)	<i>think (believe, claim)</i>	√	*	*
(3)	<i>ask (wonder)</i>	*	√	*

For Grimshaw (1979), selection is purely semantic, and the syntactic structure of a clause is relevant only in so far as it provides the input to rules which assign an interpretive type to a clause. However, she recognises that “treating complement selection syntactically is possible...if the relevant aspects of semantic interpretation are built into syntactic structure” (Grimshaw 1979: 317). This is precisely what we see in Rizzi’s (1997: 362) cartographic account, where “Complementizers express the fact that a sentence is a question, a declarative, an exclamative...and can be selected as such by a higher selector”. Nevertheless, this still adheres to the same basic idea that FCCs are selected by matrix predicates on the basis of their interpretive type, and that the empirical patterns to be accounted for are as presented in Table 1. The only difference is that interpretive type has a direct syntactic correlate.

In this paper, I show that approaches which posit that FCCs are selected by matrix predicates on the basis of their interpretive type cannot parsimoniously account for the range of distributional data presented here. To make the argument concrete, I use accounts in the spirit of Grimshaw (1979), where interpretive type is construed as purely semantic, to illustrate this point. However, Rizzi (1997) and other accounts which posit FCC-selection on the basis of syntactically-encoded interpretive type have the same shortcomings. Note that the goal of this paper is to provide a more accurate characterisation of the properties which are relevant to the distribution of FCCs than has been offered to date. Like these earlier accounts, it does not tackle the deeper question of why predicates differ in the selectional requirements they place on their complements.

## 2. Expanding the inventory of finite clausal complements: complementiser-how clauses

Since Kiparsky & Kiparsky (1971), two types of *that*-clause complement have been distinguished: factive (4) and non-factive (5). I follow these authors in using the term ‘factive’ to characterise the presupposition “that the complement of the sentence expresses a true proposition” (Kiparsky & Kiparsky 1971: 345). Whilst for Kiparsky & Kiparsky (1971: 345) it is speakers who presuppose, like Karttunen (1973) I consider presupposition rather to be a property of sentences. The relevant definition which I make use of is that of Shanon (1976: 247) for whom “A sentence *S* logically presupposes a sentence *P* just in case *S* logically implies *P*, and the negation of *S* also logically implies *P*”. Thus, the *that*-clause complements to the predicate *forget* (4) are factive, whilst the *that*-clause complements to the predicate *think* are non-factive (5).

- |   |                       |
|---|-----------------------|
| (4) a. John forgot [that Mary was never late].      | ⇒ Mary was never late |
| b. John didn’t forget [that Mary was never late].   | ⇒ Mary was never late |
| <br>(5) a. John thought [that Mary was never late]. | ⇏ Mary was never late |
| b. John didn’t think [that Mary was never late].    | ⇏ Mary was never late |

On the basis of this semantic distinction, Ginzburg & Sag (2000: 72-78) consider *that*-clauses to belong to two distinct interpretive types. Non-factive *that*-clauses qualify as propositions, just as in Grimshaw (1979). Factive *that*-clauses are assigned the interpretive type ‘fact’. Predicates differ in which they permit as complements. The picture presented in the two accounts is summarised in Table 2.

Table 2 - Summary of the types of *that*-clause complement selected by different predicates

	Grimshaw (1979)	Ginzburg & Sag (2000)	
	proposition	proposition	fact
<i>forget</i> ( <i>know</i> , <i>remember</i> )	√	*	√
<i>think</i> ( <i>believe</i> , <i>claim</i> )	√	√	*
<i>ask</i> ( <i>wonder</i> )	*	*	*

Complementiser-how clauses (CHCs) such as (6) and (7) are another kind of factive complement. Example (8) is parallel to (4) above, but involves a CHC instead of a *that*-clause under *forget*. Examples parallel to (5) cannot be constructed, as CHCs, like other *wh*-clauses, are disallowed under *think*, as under almost all predicates which permit non-factive *that*-clause complements.<sup>5</sup>

Thus whilst *that*-clause complements come in two flavours, factive and non-factive, CHCs appear always to be factive.<sup>6</sup>

- (6) Jurors have heard [how the boy had been placed on the child protection register with Haringey social services nine months before his death].

(From *The Guardian* 31.10.2008, p.8 col.5)

- (7) She told me [how she hadn't seen her husband for 3 months] and wouldn't see him for yet another 3 months.<sup>7</sup>

(From <http://www.chronofhorse.com/forum/archive/index.php/t-218829.html>. Last accessed 16.06.2013)

- (8) a. John forgot [how Mary was never late].  $\Rightarrow$  Mary was never late  
 b. She didn't forget [how Mary was never late].  $\Rightarrow$  Mary was never late

Despite having received some attention in the recent literature (Legate 2010, Nye 2012), CHCs remain under-studied in comparison to other English FCCs. Examples such as (9) and (10) make clear, however, that CHCs are not simply equivalent in interpretation to factive *that*-clauses, but contribute something additional. Warner (1982: 182) notes that in (9b) in comparison to (9a) ‘some further content to Paul’s statement is suggested, and the speaker merely reports the gist of it’. This seems to relate to what Defrancq (2009) characterises as the ‘narrative’ function of CHCs. This is even more apparent in the attested CHC in (10), which does not simply present the factual recollection of a situation, but also appears to reactivate or elaborate on particular details of this. With a *that*-clause, the result is at best stylistically odd, despite the fact that the combination *remember* + *that*-clause is in principle grammatical. Whilst this is only a first approximation of the interpretive distinction between CHCs and factive *that*-clauses, which remains to be refined and formalised in future work, the crucial point is that CHCs do differ in interpretation from factive *that*-clauses.

- (9) a. Paul told me [<sub>CP</sub> that he was in love with Mary].  
 b. Paul told me [<sub>CHC</sub> how he was in love with Mary]. [Warner (1982: 182), ex. (22), (23)]

- (10) And then there was Autumn. Her golden hair was like the crisp leaves under a tree on a cool fall morning. Every morning he remembered [how/#that she would sit under the maple



Table 3 - The interpretive types of certain FCCs

	Grimshaw (1979)	Ginzburg & Sag (2000)
non-factive <i>that</i> -clause	proposition	proposition
factive <i>that</i> -clause	proposition	fact
exclamative	exclamation	fact
CHC	???	???

Given the interpretation CHCs receive, they seem best incorporated into Ginzburg & Sag's (2000) system as 'facts', like factive *that*-clauses and exclamatives. Question complements can additionally be coerced into 'facts' by factive predicates (Ginzburg & Sag 2000: 74), but as interrogative clauses are not pertinent to my current concerns, I do not explore this possibility here. Therefore if matrix predicates select for FCC complements on the basis of interpretive type, there are only two relevant options: a matrix predicate either permits 'fact' complements, or rejects 'fact' complements. Hence the three factive FCCs are predicted to show an identical distribution. This prediction is not met, as classes 3 and 4 of Table 4 make clear.

Table 4 - Overview of the distribution of factive *that*-clauses, CHCs and exclamatives

	predicate classes	factive <i>that</i> -clause	CHC	exclamative
1	<i>find out, see, forget</i>	y	y	y
2	<i>believe, think, claim</i>	n	n	n
3	<i>describe, detail, discuss</i>	n	y	y
4	<i>sorry, happy, glad</i>	y	n	n

Grimshaw (1979: 323) already observed that not all predicates which select factive *that*-clauses also permit exclamative complements, and indeed, whilst there are many predicates under which factive *that*-clauses (a), exclamatives (b) and CHCs (c) are consistently accepted (13), or rejected (14) (classes 1 and 2 in Table 4), crucially there are also certain predicates which reject *that*-clause complements, but nevertheless allow exclamatives and CHCs (15), or conversely permit factive *that*-clauses, but not exclamatives or CHCs (16) (classes 3 and 4 in Table 4). Yet in a system where matrix predicates select complements on the basis of interpretive type, FCCs of the same interpretive type should not diverge in distribution.

- (13) a. We found out/saw/forgot [that they couldn't return home].  
 b. We found out/saw/forgot [what a dreadful experience it was].  
 c. We found out/saw/forgot [how they couldn't return home].
- (14) a. # We believed/thought/claimed [that they couldn't return home].<sup>9</sup>  
 b. \* We believed/thought/claimed [what a dreadful experience it was].  
 c. \* We believed/thought/claimed [how they couldn't return home].
- (15) a. \* We described/detailed/discussed [that they couldn't return home].  
 b. We described/detailed/discussed [what a dreadful experience it was].  
 c. We described/detailed/discussed [how they couldn't return home].
- (16) a. We are sorry/happy/glad [that they couldn't return home].  
 b. \* We are sorry/happy/glad [what a dreadful experience it was].  
 c. \* We are sorry/happy/glad [how they couldn't return home].

Grimshaw's (1979) account does not naturally extend to capture these data either. Given that she assigns *that*-clauses the type 'proposition', and exclamatives the type 'exclamation', there seems equal semantic justification for CHCs qualifying as their own distinct interpretive type. Yet if this were the case, the fact that CHCs and exclamatives have precisely the same distribution is surprising. It could only be captured by stipulating that exactly the same range of predicates select for both of these types of FCC. Whilst such a system could be implemented, it would inevitably involve a lot of redundancy.

The empirical patterns rather seem to suggest that CHCs and exclamatives must constitute one interpretive type, if FCCs are indeed selected on the basis of their interpretive type. Yet not only does this give no explanation for the fact that there are many contexts in which factive *that*-clauses do pattern alike with exclamatives and CHCs, it is also difficult to conceive of an interpretive characterisation which captures both CHCs and exclamatives to the exclusion of factive *that*-clauses. Regardless of the particular implementation chosen, accounts which tie the distribution of FCCs directly to their interpretive type cannot parsimoniously capture the broader range of distributional data presented here. What is needed is a more fundamental rethinking of the factors which determine the distribution of FCCs.

#### 4. Accounting for the distribution of complementiser-how clauses

CHCs and exclamatives are factive, but they are not the only factive complement clauses - there is also a ‘factive’ flavour of *that*-clause. Similarly, whilst CHCs and exclamatives are both introduced by *wh*-expressions, this characterisation does not differentiate them from embedded interrogatives. However, what does distinguish CHCs and exclamatives from all other FCCs under consideration is the confluence of these two properties: CHCs and exclamatives are unique in being both factive, and introduced by *wh*-expressions.

I therefore propose that CHCs and embedded exclamatives share a specification for the syntactically encoded properties [+*wh*, +factive]. This is part of the broader system that I envisage, summarised in Table 5, in which all FCCs can be characterised in terms of the binary features [+/- *wh*, +/- factive]. Thus factive *that*-clauses share with exclamatives and CHCs the property of being [+factive], but differ in being [-*wh*]. For the sake of completeness I add interrogative clauses, which share the [+*wh*] specification of CHCs and exclamatives but not their factivity, and non-factive *that*-clauses, which are both [-*wh*] and [-factive].<sup>10</sup> To be clear, my claim is not that such feature specifications are sufficient to characterise the syntax or interpretation of the FCCs in question. They are intended as an inventory of all and only the features which matrix predicates make reference to in selecting for FCCs.

Table 5 - Characterisation of the distributionally-relevant properties of English FCCs

Type of complement clause	[+/- <i>wh</i> ]	[+/- factive]
exclamative	+ <i>wh</i>	+factive
CHC	+ <i>wh</i>	+factive
factive <i>that</i> -clause	- <i>wh</i>	+factive
interrogative	+ <i>wh</i>	-factive
non-factive <i>that</i> -clause	- <i>wh</i>	-factive

Just as in Ginzburg & Sag’s (2000) account, the system I propose allows the factivity common to CHCs, exclamatives and factive *that*-clauses to be captured, and attributes it a key role in determining the distribution of these FCCs. It departs from Ginzburg & Sag (2000), however, firstly in additionally differentiating the former two types of FCC from the latter in terms of the [+/-*wh*] distinction, and secondly in encoding both this and factivity in the syntax of FCCs.<sup>11</sup> There is



independent support for both these innovations. Whilst I cannot hope to do justice to the vast literature, I cite some key works.

Numerous accounts posit *wh* as a syntactically relevant feature for the selection of complement clauses. Watanabe (1993: 526) explicitly claims that “There are only two types of clauses to be selected by a verb, namely *wh*-clauses and non-*wh*-clauses”, although the full range of facts cannot be captured with this distinction alone. Notably, Watanabe (1993: 529) has recourse to a “factive operator...selected by the higher verb”. Treating *wh* as a formal syntactic feature is not uncontentious, however. Other accounts (e.g. Šimík 2008) have rather sought to find a common semantic component to all uses of *wh*. However, with complementiser *how* added into the picture, it seems hard to maintain such a position.

The view that the semantic property of factivity is syntactically encoded in *that*-clause complements has been widespread since Kiparsky & Kiparsky (1971), and the idea that the (non-)factivity of an FCC influences the range of matrix predicates under which it can occur is already present in their work. A syntactic encoding of factivity in other factive clauses has also been proposed (cf. Zanuttini & Portner (2003) for exclamatives, Legate (2010) for CHCs). Thus the novelty of my account is not in positing *wh* or factivity as syntactically-encoded components of FCCs, nor in suggesting that these are relevant for selection, but rather in claiming that both of these in combination determine the distribution of all FCCs in English.

Having motivated the characterisation of English FCCs presented in Table 5, I turn to show how this captures the distributional patterns presented in Table 4. Table 6 characterises the predicate classes identified in terms of the requirements they place on their FCC complements.<sup>12</sup> Classes 1 and 3 select for [+*wh*, +factive] complements, thus allowing CHCs and exclamatives. The former also selects for [-*wh*, +factive] complements, additionally allowing factive *that*-clauses. Classes 2 and 4 do not permit [+*wh*, +factive] complements, thus CHCs and exclamatives are excluded. I do not claim to offer a deep explanation as to why predicates differ in the selectional requirements they place on their complements. Rather, I provide a novel and more accurate characterisation of the distributional patterns observed than has been offered to date. As my goal is to show the general empirical advantages such an approach offers over the traditional view of selection for interpretive type, I do not take a stance here on the precise encoding of the [+/-*wh*, +/-factive] specification of FCCs, nor on the implementation of the relation between matrix predicate and complement clause, although both of these issues deserve attention in future work.

Table 6 - Selectional requirements of English FCC-taking predicates

	predicate classes	properties of their FCCs
1	<i>find out, see, forget</i>	[+/-wh, +factive]
2	<i>believe, think, claim</i>	[-wh, -factive]
3	<i>describe, detail, discuss</i>	[+wh, +factive]
4	<i>sorry, happy, glad</i>	[-wh, +factive]

### 5. Consequences for interpretive type

Thus far I have argued that FCC-selection does not make direct reference to the interpretive type of a clause. This follows automatically if, as proposed by Zanuttini & Portner (2003: 39) on grounds entirely independent of selection, clauses do not in fact involve an interpretive type, in the sense of a semantically (or syntactically) encoded primitive. Rather, interpretive type is determined compositionally, on the basis of particular syntactic components. For instance, in order for a clause to receive the semantic denotation of an exclamation, both a factive operator and a *wh*-operator-variable configuration must be present in the syntax (Zanuttini & Portner (2003: 40)).<sup>13</sup> Noting the striking similarity to the [+wh, +factive] selectionally-relevant specification which I independently assigned to exclamatives, I tentatively hypothesise that the features of a FCC which are relevant for its selection by a matrix predicate are related to (a sub-set of) the properties which contribute to determining the interpretation of the FCC. In this spirit, it seems plausible that CHC interpretation similarly relies upon the presence of a factive operator and a *wh*-expression, which contribute the same selectionally-relevant [+wh, +factive] syntactic specification as in exclamatives. The interpretive and syntactic differences CHCs show to exclamatives arise from the fact that the *wh*-expression in the former is a complementiser, in the latter an operator. This points to the conclusion that the distribution of FCCs is not entirely divorced from their interpretation, but the connection is much more indirect than in the accounts discussed to date. This requires future corroboration on the basis of a broader range of complement clauses.<sup>14</sup>

### 6. Conclusions

In this paper I have presented new empirical patterns in the distribution of English FCCs which emerge when the data set is expanded to take CHCs into consideration. The common distribution of CHCs and exclamatives throws into question the standard view of matrix predicates selecting for FCC complements on the basis of interpretive type. I argued for an alternative approach, whereby the distribution of FCCs is rather determined by their syntactic specification in terms of the features

[+/-*wh*, +/-factive]. A detailed investigation of how embedded interrogative clauses fit into this system is a topic for future research.

## References

- Abels, Klaus. 2010. Factivity in exclamatives is a presupposition. *Studia Linguistica* 64(1). 141-157.
- Defrancq, Bart. 2009. Comment narratif. *Travaux de Linguistique* 58(1). 89-106.
- Ginzburg, Jonathan & Ivan Sag. 2000. *Interrogative investigations*. Stanford: CSLI Publications.
- Grimshaw, Jane. 1979. Complement selection and the lexicon. *Linguistic Inquiry* 10(2). 279-326.
- Karttunen, Lauri 1973. Presuppositions of compound sentences. *Linguistic Inquiry* 4(2). 169-193.
- Kiparsky, Paul & Carol Kiparsky. 1971. Fact. In Manfred Bierwisch & Karl Erich Heidolph (eds.) *Progress in Linguistics*, 143-173. The Hague: Mouton.
- Legate, Julie Anne. 2010. On how *how* is used instead of *that*. *Natural Language and Linguistic Theory* 28. 121-134.
- McCloskey, Jim. 2006. Questions and questioning in a local English. In Raffaella Zanuttini, Héctor Campos, Elena Herburger & Paul H. Portner (eds.) *Crosslinguistic research in syntax and semantics: Negation, tense and clausal architecture*, 87–126. Georgetown: Georgetown University Press.
- Nye, Rachel. 2012. The categorial status of Dutch and English declarative *hoe-/how*-complement clauses. In Marije van Hattum, Jonathan Morris & Dorothea Hoffman (eds.) *Salford working papers in Linguistics and Applied Linguistics* 2, 28-47. Salford: University of Salford.
- Rizzi, Luigi. 1997. The fine structure of the left periphery. In Liliane Haegeman (ed.) *Elements of grammar*, 281-337. Dordrecht: Kluwer.
- Shanon, Benny. 1976. On the two kinds of presuppositions in natural language. *Foundations of Language* 14. 247-249.
- Šimík, Radek. 2008. The source of *wh*-morphology in questions and relative clauses. *Proceedings of the Conference of the Student Organisation of Linguistics in Europe (ConSOLE) XV*. 273-294.
- Warner, Anthony 1982. *Complementation in Middle English and the methodology of historical syntax: A study of the Wyclifite sermons*. London: Croom Helm.
- Watanabe, Akira. 1993. Larsonian CP recursion, factive complements, and selection. *Proceedings of the 23<sup>rd</sup> Annual Meeting of the North East Linguistic Society (NELS)*, 523-537. Amherst, Massachusetts: GLSA.
- Zanuttini, Rafaella & Paul Portner. 2003. Exclamative clauses: At the syntax-semantics interface. *Language* 79. 39-81.

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<sup>2</sup> Grimshaw (1979: 280) in fact designates these as “semantic types”. I make use of the term ‘interpretive type’ to avoid confusion with the semantic types of type theory.

<sup>3</sup> Grimshaw (1979) posits that predicates also categorially select for CP or DP complements. My focus here is not on the issue of why only certain predicates permit CP complements, but rather on the possible realisations of CP complements for those predicates which do permit them.

<sup>4</sup> *Ask* can in fact take *that*-clause complements, but only in the subjunctive mood. Subjunctive clauses are not discussed by Grimshaw (1979) and are similarly beyond the scope of this paper.

<sup>5</sup> This claim holds for *think* in a declarative matrix clause in the simple present or past tense, where *think* means ‘to hold the opinion’. As a reviewer notes, exclamative complements to imperative *think* (with a meaning closer to ‘consider’) are possible (i). However, as CHCs are similarly possible in this context (ii), the common distribution observed in Table 4 is maintained. A similar point can be made for *believe* vs. *can’t believe*.

(i) Just think [what a close call that was].

(ii) Just think [how he never once visited].

<sup>6</sup> As a reviewer correctly observes, under certain predicates, such as *tell*, *lie about*, *go on about*, the factivity of CHCs appears to be suspended (i). Crucially, however, so is the factivity of an embedded exclamative (ii), as Abels (2010) observes. He argues that this behaviour is typical of presupposition-carrying expressions, and thus provides support rather than counter-evidence for their factivity.

(i) He lied about [how Mary was never late].                       $\nRightarrow$  Mary was never late

(ii) He lied about [what a great cook he was].                       $\nRightarrow$  he was a great cook

<sup>7</sup> The presence of negation inside a CHC reduces the likelihood of ambiguity with other *wh* complement clauses, as it usually has the effect of excluding question and exclamation interpretation. For this reason, the CHC examples I construct all involve negation.

<sup>8</sup> For ease of exposition, in subsequent examples I use clauses introduced by the unambiguously exclamative *wh*-expression *what a*.

<sup>9</sup> The string in (14a) is grammatical, but the *that*-clause complement is non-factive.

<sup>10</sup> In fact, given the work of McCloskey (2006), a distinction may be needed between two kinds of interrogative complement clause, the ‘true interrogative’ complements to *ask* and *wonder*, which

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would have the [+*wh*, -factive] specification, and the ‘resolutive’ complements to *tell* and *find out*, which would share with CHCs and exclamatives both the [+*wh*, +factive] specification, and their distribution.

<sup>11</sup> Ginzburg & Sag (2000: 70 f.n. 19) do in fact discuss the idea that the syntactic property of [+/-*wh*] may also be of relevance in determining the distribution of FCCs, although ultimately deem this “superfluous” to the semantic distinctions they make. Yet without such a distinction, their account predicts a common distribution for factive *that*-clauses and exclamatives.

<sup>12</sup> The classes of matrix predicates identified here are by no means exhaustive. For instance, predicates such as *ask*, *wonder* realise the other basic logical possibility, which is a requirement for predicates which are [+*wh*, -factive]. The empirical generalisations made to date hold even when the data set is expanded.

<sup>13</sup> Zanuttini & Portner’s (2003) proposal is for matrix exclamatives, but I see no reason not to apply this in the embedded domain.

<sup>14</sup> Interrogatives, in Zanuttini & Portner’s (2003) system, similarly involve a *wh* operator-variable relation, but no factive operator. This is compatible with the [+*wh*, -factive] selectional specification which I assign to them.